

IEEE Standards Association SCC 40 – Earth Observations

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GEO and GEOSS

◆ The Intergovernmental Group on Earth Observations (GEO)

- ❖ Created to address need for coordinated and sustained Earth observations to benefit humanity and address pressing environmental issues
- ❖ Overseeing the development of a Global Earth Observation System of Systems (GEOSS)
- ❖ IEEE is key contributor to architecture, data and capacity-building tasks

The ICEO

◆ The IEEE Committee on Earth Observations (ICEO)

- ❖ Has taken a leadership role in facilitating standards and interoperability for GEOSS

◆ ICEO efforts in support of GEOSS include

- ❖ The ICEO Standards Working Group
- ❖ The GEO Standards and Interoperability Forum
- ❖ The GEOSS Standards Registry
- ❖ The GEO Interoperability Process Pilot Projects

The Standards Coordinating Committee for Earth Observations

- ◆ **SCC 40 was created to facilitate standards development in support of**
 - ❖ GEOSS core infrastructure
 - ❖ Earth observation data and decision support systems
 - ❖ Efforts to mitigate impacts of climate change
- ◆ **Approved by the Standards Board March 2006**
- ◆ **SCC Type 2 – can involve multiple IEEE technical societies**
- ◆ **Current SCC40 membership working on GEOSS-related standards projects**
 - ❖ Includes a standards taxonomy for Earth observations

SCC40 Activities

- ◆ **SCC40 sponsored a workshop on Climate Change and GHG Management in June 2008**

<http://grouper.ieee.org/groups/earthobservationsSCC/13JuneAgenda.html>

- ◆ **Identified initial areas for further exploration**

- ❖ Energy efficiency – Data networks and Smart grid
- ❖ Framework for master global table of carbon sources
- ❖ Framework for carbon sequestration measurements
- ❖ Terms & semantics – to foster a common lexicon

- ◆ **Solicited statements of scope from potential SCC40 subgroups**

Power and Manufacturing Sector Subgroup (PMSS) Scope

◆ Encompasses

- ❖ Electric Power Generation, Transmission, and Distribution
- ❖ Electrical Loads including the Transportation Industry, Industrial Processes, and Residential Dwellings

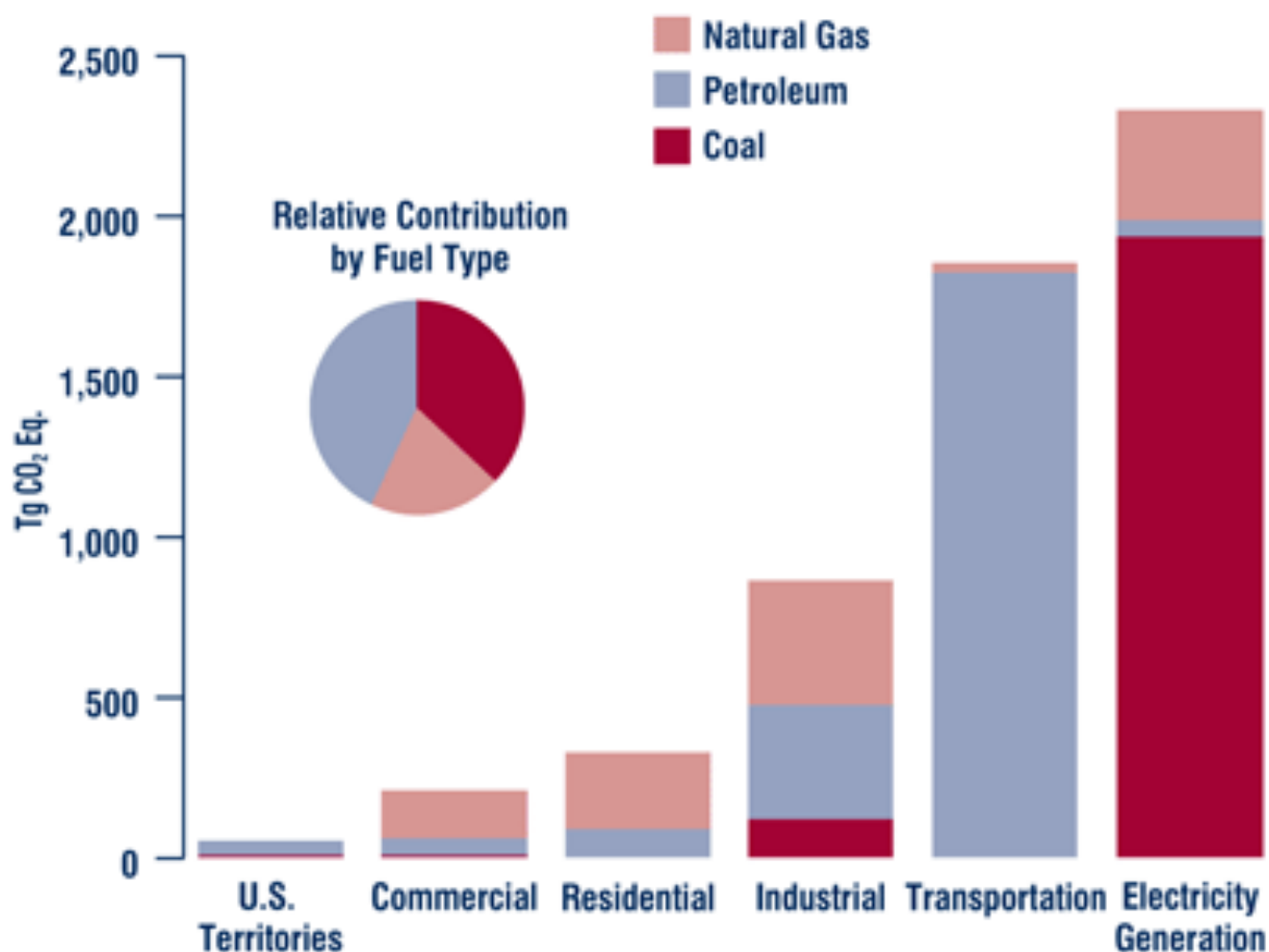
◆ Goal is to develop long-term Electric Power Plan

- ❖ Starting with current infrastructure
- ❖ Accounting for limits on natural resources, economics, and availability of technologies
- ❖ Applicable to any country

◆ Determine technologies that are likely emerge or will need to be developed

◆ Determine what standards may be needed for application of these technologies and to support the implementation of the Plan.

2006 CO₂ Emissions from Fossil Fuel Combustion by Sector and Fuel Type



Source: [U.S. Greenhouse Gas Emissions Inventory](#) (y-axis units are teragrams of CO₂ equivalent)

P2030.1 Overview

◆ **Guide for understanding and defining the electric grid infrastructure requirements to support electric-sourced transportation**

- ❖ Will include both vehicle and mass transit
- ❖ Necessary to determine the future grid infrastructure requirements
- ❖ Will have to be implemented in phases

IEEE P2030.1 Standard

- ◆ **Transportation Load Characteristics**
- ◆ **Electric Grid Requirements to Support the Transportation Loads**
- ◆ **Identify research necessary to overcome barriers**
- ◆ **Roadmap to help utilities prepare for loads**

Goal of the IEEE P2030.1 Standard

◆ Educate Utilities on:

- ❖ What is coming
- ❖ When they need to prepare for it
- ❖ How they can prepare for it
 - Minimizes effect on environment
 - Do so in economically responsible way

◆ Much research on transportation methods being performed today

SCC40 Activities Specific to P2030.1

- ◆ In July 2009 reviewed the Project Authorization Request (PAR) from PMSS
- ◆ Sponsoring the P2030.1 standards development process
- ◆ Providing interface to IEEE-SA standards development committees
 - ❖ Submitted PAR to IEEE-SA New Standards Committee
 - ❖ Approved at September 2009 meeting

Relation to other IEEE-SA activities

- ◆ **Project was initiated as P1809 but is now coordinating with P2030 (Smart Grid Interoperability) and so was renumbered**
 - ❖ P2030 is sponsored by SCC21 (Fuel Cells, Photovoltaics, Dispersed Generation, and Energy Storage)
 - ❖ Heavy NIST and NREL involvement
 - ❖ Opportunity exists for more participation driving development of standards and SmartGrid future
- ◆ **Also tied into IEEE-wide Smart Grid activities**
 - ❖ Working with IEEE Energy Policy Committee (EPC)
 - ❖ Development of working agreement with SAE (Society of Automotive Engineers) and IEEE Standards Association to facilitate integration of standards for customer and utility requirements.

P2030.1 Working Groups

- ◆ **Originally proposed to segment into following areas:**
 - ❖ Transmission
 - ❖ Generation
 - ❖ Distribution
 - ❖ End-Customer
 - ❖ Writing Groups
- ◆ **Opportunity to streamline the above working groups to facilitate integration with P2030 and electric utility adoption**

Review of Feb 2010 Webcast

- ◆ **P2030.1 Kick-off Meeting held via Webcast**
- ◆ **Over 230 participants**
- ◆ **Presentations from NIST, EEI, NREL, SAE, and other major research and professional organizations**
- ◆ **Presentations available on Web:**
 - ❖ <http://grouper.ieee.org/groups/earthobservationsSCC/PMSS.html>

Organizational Structure (under revision)

- ◆ **Over 300 volunteers have indicated their interest in working with the P2030.1 group**
- ◆ **Updating organizational structured and schedule**
 - ❖ Pending agreement between IEEE SA and SAE, along with support from IEEE Power and Engineering Society
 - ❖ Planned for Sept 2010
- ◆ **New web tools coming**
 - ❖ User-friendly meeting calendar, agenda, minutes
 - ❖ Will include hotlinks to Working Group officers (TBD)
 - ❖ Scheduled completion prior to Sept meeting
- ◆ **Original organizational structure detail attached to end of presentation**

Opportunities

- ◆ **Participation in SCC40 and/or P2030.1 is welcomed!**
- ◆ **P2030.1 high-level schedule**
 - ❖ IEEE-SA Ballot 08/2012
 - ❖ RevCom submission 08/2013
- ◆ **Coordination framework**
 - ❖ SCC40 has quarterly meetings third Thursday of April, July, October, January
 - ❖ Extraordinary meetings possible on 30 day notice, agenda distributed 14d in advance

Conclusion

◆ Significance of P2030.1

- ❖ Represents the responsive counterpart to information gleaned from GEOSS
- ❖ Could play a significant role in global efforts to reduce emissions from transportation sector

◆ Issues related to electric-sourced transportation are at the political forefront, presenting varied problems to solve, e.g. SPECTRUM January 2010:

“The myth that thousands of EVs will seamlessly fold into the power grid by charging at night, using otherwise idle generating plants and power grids, is breaking down.” Peter Fairley, *Speed Bumps Ahead for Electric-Vehicle Charging*

Useful Links

◆ IEEE Standards Association

- ❖ <http://standards.ieee.org/>

◆ SCC 40 Homepage

- ❖ <http://grouper.ieee.org/groups/earthobservationsSCC/>

◆ SCC 21 Homepage

- ❖ <http://grouper.ieee.org/groups/scc21/>

◆ ICEO Homepage

- ❖ <http://www.ieee-earth.org/>